in which M^{II} is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba; M^{III} is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of $0<x\leq0.1$ and $0<y\leq0.1$, respectively, to cause the phosphor to emit a green light;

and

measuring a variation per unit time of strength of the green light.

2. (Original) The method of claim 1, wherein the dosimeter is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

3. (Original) The method of claim 1, wherein M^{II} in the formula (I) is at least one of Sr and Ba, and M^{III} in the formula (I) is at least one of Y and Gd.

4. (Original) The method of claim 1, which further comprises the step of preparing a calibration curve by applying a standard target radiation in a known dose to the same dosimeter, and measuring a variation per unit time of strength of a green light emitted by the phosphor.

5. (Previously Amended) A method of producing a radiation image which comprises the steps of:

applying a radiation having passed through a target or having been radiated by a target onto a radiation image storage panel containing a layer of terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):

$$M^{II}M^{III}_2{:}xTb, ySm \qquad (I)$$

in which M^{II} is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba; M^{III} is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of $0<x\leq0.1$ and $0<y\leq0.1$, respectively, to cause the phosphor to emit a green light;

determining a variation per unit time of strength of the green light in each pixel which is imaginarily set on the storage panel, to obtain two-dimensional image data;

and

producing a radiation image from the obtained image data.

6. (Original) The method of claim 5, wherein M^{II} in the formula (I) is at least one of Sr and Ba, and M^{III} in the formula (I) is at least one of Y and Gd.

7. (Currently Amended) A method for measuring a dose of ultraviolet rays which comprises the steps of:

applying ~~a~~ target ultraviolet rays to a means containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):

$$M^{II}M^{III}_2:xTb,\ ySm \qquad (I)$$

in which M^{II} is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba; M^{III} is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of $0<x\leq0.1$ and $0<y\leq0.1$, respectively, to cause the phosphor to emit a green light;

and

measuring a variation per unit time of strength of the green light.

8. (Original) The method of claim 7, wherein the means is in the form of a sheet

which comprises a support and a phosphor layer containing the phosphor.

9. (Original) The method of claim 7, wherein M^{II} in the formula (I) is at least one of Sr and Ba, and M^{III} in the formula (I) is at least one of Y and Gd.

10. (Original) The method of claim 7, which further comprises the step of preparing a calibration curve by applying standard target ultraviolet rays in a known dose to the same means, and measuring a variation per unit time of strength of a green light emitted by the phosphor.

11. (Currently Amended) A method for measuring a radiation dose which comprises the steps of:

applying ultraviolet rays to a dosimeter containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):

$$M^{II}M^{III}_2{:}xTb, ySm \qquad (I)$$

in which M^{II} is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba; M^{III} is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of $0<x\leq0.1$ and $0<y\leq0.1$, respectively, to cause the phosphor to emit a <u>first</u> green light and a <u>first</u> red light;

measuring a strength of the <u>first</u> green light and a strength of the <u>first</u> red light;

applying a target radiation to the dosimeter, so as to cause variation of atomic valency for the terbium and samarium;

applying ultraviolet rays to the dosimeter to which the target radiation has been applied, to cause the phosphor to emit a <u>second</u> green light and a <u>second</u> red light;

measuring a strength of the ~~latter~~ <u>second</u> green light and a strength of the ~~latter~~ <u>second</u>

red light;

and

comparing the former strengths of the <ins>first</ins> green light and <ins>first</ins> red light with the ~~latter~~ strengths of the <ins>second</ins> green light and <ins>the second</ins> red light.

12. (Original) The method of claim 11, wherein the dosimeter is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

13. (Original) The method of claim 11, wherein M^{II} in the formula (I) is at least one of Sr and Ba, and M^{III} in the formula (I) is at least one of Y and Gd.

14. (Currently Amended) A method of producing a radiation image which comprises the steps of:

applying ultraviolet rays to a radiation image storage panel containing a layer of a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):

$$M^{II}M^{III}_2{:}xTb,\ ySm \qquad (I)$$

in which M^{II} is at least one alkaline earth metal element selected from the group consisting of Mg, Ca, Sr and Ba; M^{III} is at least one rare earth element selected from the group consisting of Y, La, Gd and Lu; and x and y are numbers satisfying the conditions of $0<x\leq0.1$ and $0<y\leq0.1$, respectively, to cause the phosphor to emit a <ins>first</ins> green light and a <ins>first</ins> red light;

measuring in each pixel which is imaginarily set on the storage panel, a strength of the <ins>first</ins> green light and a strength of the <ins>first</ins> red light, to obtain two-dimensional image data;

applying a radiation having passed through a target or having been radiated by a target onto said radiation image storage panel, so as to cause variation of atomic valency for the terbium and samarium in each pixel;

applying ultraviolet rays to the storage panel to which the target radiation has been applied, to cause the phosphor to emit a second green light and a second red light;

determining in each pixel a strength of the ~~latter~~ second green ~~tight~~ light and a strength of the ~~latter~~ second red light, to obtain two-dimensional image data; and

processing the ~~latter~~ strengths of the second green light and the second red light with reference to the ~~former~~ strengths of the first green light and the first red light in each pixel, for producing a radiation image from the obtained image data.